REAL-TIME CROWD DENSITY ESTIMATION FROM VIDEO

ABSTRACT OF THE DISCLOSURE

A system and method for automated and/or semi-automated analysis of video for discerning patterns of interest in video streams. In a preferred embodiment, the present invention is directed to identifying patterns of interest in indoor settings. In one aspect, the present invention deals with the change detection problem using a Markov Random Field approach where information from different sources are naturally combined with additional constraints to provide the final detection map. A slight modification is made of the regularity term within the MRF model that accounts for real-discontinuities in the observed data. The defined objective function is implemented in a multi-scale framework that decreases the computational cost and the risk of convergence to local minima. To achieve real-time performance, fast deterministic relaxation algorithms are used to perform the minimization. The crowdedness measure used is a geometric measure of occupancy that is quasi-invariant to objects translating on the platform.